THE

JOURNAL OF HEALTH.

CONDUCTED BY AN ASSOCIATION OF PHYSICIANS.

Health—the poor man's riches, the rich man's bliss.

NO. 21. PHILADELPHIA, JULY 13, 1831. VOL. II.

We give insertion, in our present number, to a detailed description of the conservative dress and apparatus of Aldini against fire. The article, for which we are indebted to a transatlantic contemporary,* is rather long, but will, we hope, prove an acceptable offering to the laudable curiosity of a large majority of our readers; and in a more especial manner to the valuable organized corps of firemen in the different cities of the United States. But while thus explaining to them the means by which an individual may pass unharmed through a house or a room on fire, we would at the same time caution this estimable class of our fellow-citizens, themselves coming from all classes of the community, against the still more dangerous, because unsuspected, internal fire, which may be raised within them, by the use of ardent spirit, and intoxicating liquors in general.

We feel with more than usual acuteness, when we hear of a fireman suffering from intemperance, and becoming the victim to a habit of using strong drink, when we know that often this destructive habit was begun at times and on occasions in which he was volunteering his aid to save the property, and frequently the lives, of his fellow-citizens from the raging fire. We would, therefore, entreat all the associates in this noble cause—all the members of engine and hose companies, to call to mind the important fact, that, however great their exposure to intense cold or wet, however severe and fatiguing the duty which they impose on themselves, they are not required, either for the preservation of their health,

* Monthly Gazette of Health; or, Monthly Gazette of Practical Medicine. Edited by Richard Reece, M. D. &c. &c. London.

or renovation of their strength, to use alcoholic liquors in any form, and especially in that most pernicious variety, distilled spirit, call it whiskey, gin, rum, or brandy. We conjure them to abstain from all such drinks, and to imitate the example of the fearless tar, and the gallant soldier, both of whom, in all the vicissitudes of climate, and fatigues of duty, find themselves more healthy and cheerful, less prone to disease, and more readily cured when sick, by abstinence from all intoxicating liquors, and by making water their sole drink. Entire crews of vessels, and whole regiments of soldiers, are acting on this principle of abstinence. Shall it be said of firemen, that, while aiding their fellow-citizens to preserve their property and lives, they senselessly throw away their own health, and ultimately lives, not in the act, or the effects of the act, of heroic exposure, but in a sensual, low, and degrading gratification of vitiated appetite, by drinking ardent spirit. Let them leave the scene of their noble devotion, with an exhilaration of mind growing out of the conscious discharge of their duties, and the warm and animated thanks of their fellow-citizens, whose properties they have just saved; but never let them degrade themselves to the level of menials, by accepting the proffered dram, as if poison were to be considered a fit return for their unpaid and unpurchaseable services.

If some beverage of a cordial character be still thought necessary, a cup of coffee in winter, or a glass of lemonade (not, of course, iced) in summer, will be all sufficient, and will produce a much greater feeling of refreshment, than any kind of intoxicating drinks. Were Franklin alive, to be an adviser on the occasion, he would recommend a bowlfull of warm gruel.

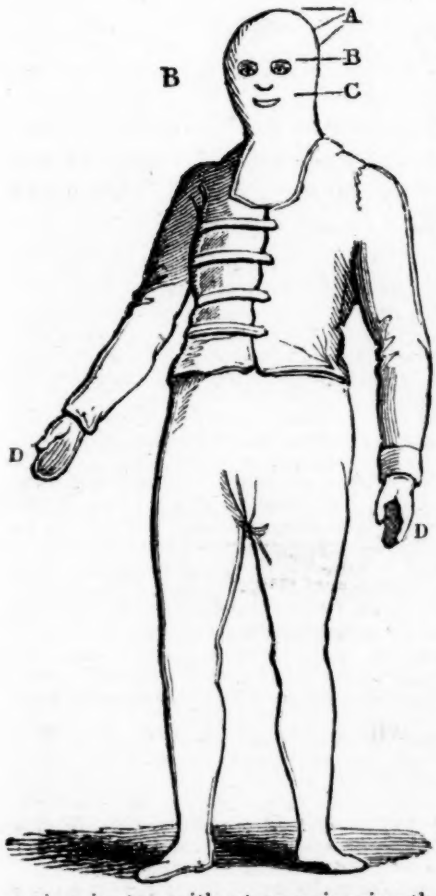
On his return home, the most important precaution to be adopted by a fireman, is to throw off immediately his wet clothes, rub himself well with a coarse towel, warm well his feet if cold, and either put on dry body clothes, or retire to bed, according to the hour.

PRESERVATION OF HUMAN LIFE, &c. &c. IN CASES OF FIRE.

THE means of preserving human life and valuable articles from injury or destruction in cases of fire, which we briefly noticed in our number for February last, were invented about two years since by the Chevalier Aldini, of the University of Bologna, a gentleman very favourably known to all the philosophical societies of Europe, for many valuable scientific communications, particularly on galvanism, and also for many important improvements in the construction of surgical instruments, &c.

To enable a person to pass through an avenue or room filled with flame, or to ascend or descend a flight of stairs or a ladder enveloped in flame, Aldini recommends two dresses; one (the inner) made of a mineral production, termed asbestos, and the other (the exterior) of wire-gauze. The accompanying drawings represent (*Fig.* 1,) a person clothed with the asbestos dress, and (*Fig.* 2,) with the wire-gauze dress over it.

EXPLANATION OF FIG. 1.



A, a cap, with a mask of asbestos. B, openings, covered with Muscovy talc, * for the purpose of vision. C, an opening, to admit air for breathing. D D, the hands covered with thick gloves of asbestos.

Asbestos,† of which this inner dress is made, is incombustible, even in the strongest fire, and is so slow a conductor of caloric, (matter of heat) that it is commonly denominated a non-conductor of it. The advantages of a dress composed of such material, in cases of fire, are obvious. Being incombustible in the strongest fire, or when the whole place is in a state of *complete* combustion, and being at the same time a very slow conductor of heat, it protects the skin or dress that may be in contact with its internal surface, from the action of external fire, a sufficient length of time to admit of a person to pass through a room or avenue, and to ascend or descend a flight of stairs, and to return to the place from whence he started, with impunity. In consequence of the gloves being made of treble asbestos cloth, a person is enabled by them to grasp a red-hot bar of iron, or an article in a state of active combustion, and to hold it for about five or six minutes, without experiencing the slightest inconvenience.

In consequence of the present high price of asbestos cloth, Aldini, in many of his experiments (conducted on a large scale) covered the trunk of the body, and the lower and upper extremities, with thick woollen cloth, that had been macerated for a few hours in a strong solution of common alum, and af-

* These openings were covered by Aldini with fine wire-gauze; but Dr. Reece, observing the warm air that passed through its apertures, which contains a great portion of carbonic acid and a little smoke, to excite a considerable degree of inflammatory action in the external tunics of the eyes, and edges of the eye-lids, and irritation in the lachrymal glands, so as to occasion a very troublesome secretion of tears, substituted the Muscovy talc [mica] for it, which has been found not only to protect the eyes from the action of heated air, &c. but to answer much better than wire gauze for the purpose of vision. This variety of talc, which is procured chiefly from Russia, has of late years been found in the province [state] of Pennsylvania. The best quality of it is more transparent than the common window glass of this country; and in many parts where it is most abundant, it is used in lieu of glass for windows. In the Russian navy, it has been always employed instead of glass, on account of not being liable to be broken by the concussion produced on the discharge of cannon, or any other heavy artillery. In its native state it is very easily divided into plates, and is so finely lamellated, that Hauy says, he divided a piece, only of the thickness of an inch, into five hundred thousand plates. The transparency, toughness, and incombustibility in common fire, of this mineral production, render it particularly fit for the purpose for which it is adopted in the asbestos dress.

† This article, also termed *earth flax*, *mineral wool*, and *salamander wool*, is a mineral production belonging to the talc family. There are five varieties or sub-species of it: namely,

terwards quickly dried. Woollen cloth is nearly as bad a conductor of caloric as asbestos; and when its combustibility is considerably diminished by a diffusion of alum* throughout its substance, it approximates so nearly to the nature of asbestos, that when defended against the action of blaze by the wire-gauze dress, it has been found, in many of the experiments made by Aldini, to answer the same purpose.

The discovery of the safety lamp,† by the immortal Sir Humphry Davy,

amianthus, elastic asbestos or *rock cork, mountain cork, common asbestos,* and *ligniformed mountain wood.* The first variety (amianthus) is employed by Aldini for making the asbestos dress, &c. Its fibres, which are sometimes many inches in length, are flexible and elastic, and of a white greenish or reddish colour, of a silky or pearly lustre, and slightly translucent. When rubbed between the fingers, it appears unctuous. It is found in many of the islands of the Mediterranean sea, particularly Corsica; also in Italy, Siberia, Egypt, the Island of Anglesey, in Scotland, in different parts of North and South America, and of an inferior quality in this country. The price of it varies according to its quality. At present, the demand for it is very small; but should the asbestos dress be generally adopted by the fire insurance companies, it would no doubt be imported at a very reduced rate, probably at about one-eighth of the present price. The incombustible nature of asbestos was well known to the ancients. The Romans, some centuries since, made cloth of it, to wrap up the bodies of their saints, &c. when exposed to the funeral pile, for the purpose of preserving their ashes from contamination! A large piece of asbestos cloth, which had been long used for this purpose, is preserved in a state of great perfection in the library of the Vatican, at Rome. Several moderns have succeeded, by means of an admixture of flax and oil, in spinning and weaving this article, both of which are afterwards destroyed by exposing the cloth to a red heat. Aldini, after many fruitless attempts to make the asbestos cloth without the aid of flax or oil, fully succeeded in accomplishing it by means of steam. He found, when exposed to the steam of boiling water, the fibres were readily twisted and bent, so as to admit of being spun and weaved. The texture of the cloth, thus manufactured under his direction in Italy, appears to be very loose; but the threads, which are about one-fifth of an inch in diameter, are very strong. He has also made cords with it, with which ladders may be made, to enable a person, protected by the asbestos and wire-gauze dresses, to ascend or descend through a blazing fire; and which may be conveyed through a flame to the upper stories of the premises, so as to allow a person to escape through a window.

* Dr. Reece, after making numerous experiments with different saline articles, found a solution of sulphate of alumine, sulphate of magnesia, and borate of soda, in a weak decoction of a sea-weed, termed *carragaheen,* (which is very mucilaginous,) to render woollen or linen cloth less combustible than any of the saline preparations that have been recommended for this purpose. He was induced to make use of the carragaheen, in consequence of finding it to be nearly incombustible in common flame, and to render the cloth more compact. The following are his directions for making the solution:—

Boil two ounces of carragaheen in eight pints of water gently, till reduced to a pint; then add common alum, in powder, six ounces; borate of soda, in powder, four ounces, and common magnesia, two ounces. Simmer until the articles are completely dissolved. The magnesia, by uniting with the excess of sulphuric acid of the alum, forms the sulphate of magnesia.

In this solution, the cloth (woollen or linen) is to be gently boiled in a close vessel for about two hours, and then to be speedily dried. The cloth thus prepared is as slow a conductor of the matter of heat, and nearly as incombustible in a common fire, as asbestos.

† Sir Humphry Davy observing, when engaged in conducting some experiments, that flame did not even enter the mouth of a small tube, was induced to make the experiment with flame on fine wire-gauze, which may be considered an assemblage of very short small tubes, or rather of the mouths of small tubes. The small apertures proving to be impermeable to flame, he concluded that a common oil lamp, placed in a cage of such gauze, might be safely employed in an atmosphere rendered explosive by an accumulation of carburetted hydrogen, termed by miners "*fire-damp,*" which escapes from between beds of coal in coal mines. Hence, this discovery, the important advantages of which Aldini has so happily extended to the preservation of life and valuable property in cases of fire, is not, like many discoveries, particularly in medicine, the offspring of chance, but the beautiful fruit of elaborate experiment and close induction. The extraordinary effect of wire-gauze in obstructing the passage of flame, is attributed by some chemists to an absorption of caloric by the wire-gauze that reduces the temperature to a degree too low for combustion. Dr. Turner, the celebrated professor of chemistry, of the London University, says, the effect is equally certain at *any degree of heat which the flame is capable of communicating to the wire.* From repeated experiments we can positively assert, that as soon as the wire becomes red hot, flame passes through the apertures, in a perfect state of combustion; *i. e.* without smoke. We should rather attribute the effect to a want of a proper supply of oxygen to support the flame, the portion in the air occupying the

which has been the means of saving the lives of many thousand miners from a dreadful death, led to the invention of the wire-gauze dress, represented *Fig.* 2. The flame of fire not passing through the apertures of the wire tissue, the space between this dress and that of asbestos is occupied by air, which has been found, notwithstanding the great consumption of oxygen by the surrounding combustion, the production of carbonic acid gas, and the high temperature (when nearly free from smoke and vapour,) to occasion little or no inconvenience.* When Aldini repeated his experiments in London, on a large scale, so that the men with his protecting dresses were completely enveloped in flame, after remaining in this state upwards of nine minutes, they declared that respiration continued the whole time perfectly free. On taking off the wire gauze, immediately after quitting the flames, we found the temperature of their bodies increased only about five degrees, and the pulse of each slightly accelerated, with copious perspiration; but not one complained of giddiness, or any affection of the head. The temperature of the air between the wire-gauze and the asbestos dress has been found to be thirty degrees lower than the air surrounding the wire-gauze dress. This curious fact has been attributed to an absorption of the matter of heat by the wire gauze during the time it is passing through the apertures, or perhaps some power this metal possesses of combining with this subtile fluid, so as to render it latent, and also to the radiating influence of the asbestos† dress. The gauze, like that of Davy's safety-lamp, is made of iron wire, and the apertures about 1-25th of an inch in length and breadth.‡

apertures being consumed immediately on the contact of the flame; after which, the combustible elements pass through in a gaseous state. When the flame is produced by combustion of carburetted hydrogen, the gas, during its passage through the aperture, undergoes little if any change.

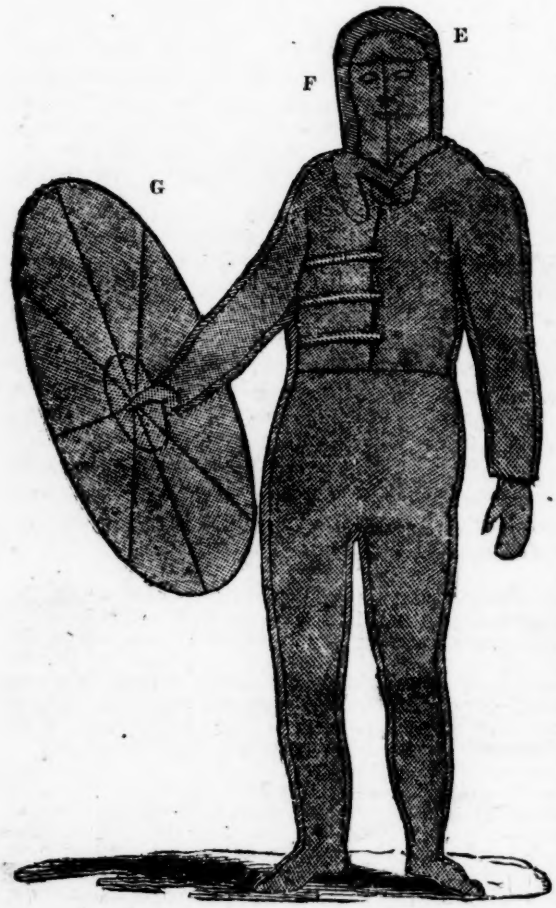
* Leather bags are now made so perfectly air-tight, that one might be made to fill up the whole of the space, to contain many gallons of atmospheric air, with a vent hole, to terminate near the mouth. Such a supply would enable a person to continue much longer in highly heated air containing either smoke or vapour, or both.

† A loose bunch of fibres of asbestos, on being introduced into the blaze of a spirit lamp, immediately becomes luminous, apparently by decomposing the flame.

‡ There is a very great difference between the action of *dry* air, at a temperature above that of boiling water, on the lungs and surface of the body, and air at the same temperature, containing aqueous vapour, as well as between inhaling dry air at a higher degree, and flame. Mr. Tillet found that a girl could continue in an oven, heated twenty degrees above the temperature of boiling water, for several minutes, without experiencing any inconvenience; and Sir Joseph Banks, Blagden, and Fordyce, exposed themselves to a dry air, at the temperature of 230 degrees, (Fahr.) for fifteen minutes; during which time, a thermometer, held in the mouth by Dr. Fordyce, only rose two degrees above the natural temperature of his body, and the others were not sensible of an increase of heat of their bodies. The great evaporation which takes place from the internal surface of the windpipe and air vessels during the respiration of air at so high a temperature, no doubt defends the membrane from injury; and the copious evaporation of perspirable matter from the skin (which is in excess,) keeps the body nearly at its natural temperature. The insensible perspiration seems to form an atmosphere which prevents the heated air from coming in contact with the skin. The living body probably possesses the power of forming combinations with the superabundant caloric, so as to render it latent. When a healthy limb is immersed in water at the temperature of 115 degrees, the heat is scarcely tolerable; but in half a minute, the sensation becomes more agreeable than otherwise; but on moving the limb quickly to another part of the water, so as to detach the insensible perspiration collected on the surface, the heat again becomes painful. Air, at the temperature of 212 and upwards, containing much aqueous vapour, inhaled for only half a minute, will do such injury to the membrane lining the windpipe, and air-vessels, &c. as to occasion death in a few hours; when therefore water is thrown into an apartment in flames by an engine, a person, although properly clothed with the defensive dresses of asbestos and wire-gauze, should advance very cautiously; for the vapour will pass through the gauze as readily as heated air.* When the combustion is not complete, from the want

* On examination of the bodies of persons, who had died from injury received from inhaling hot air, either with flame or with aqueous vapour, without sustaining much external mischief, the membrane lining the windpipe, &c. has been found highly inflamed, and even excoriated, exhibiting the appearance of having been scalded.

EXPLANATION OF FIG. 2.



E, a casque, or cap complete, of a size to admit of a hand to pass between it and the asbestos cap, for the circulation of air. A vizor is attached to the front (F) for the purpose of rendering the air more fit for respiration. The soles of the boots are made of plate iron, lined with thick asbestos paper, for the protection of the feet. G, a shield of wire-gauze, of the same manufacture as that of the external dress. The use of this appendage being to turn the direction of a strong current of flame, or prevent a quantity of smoke from being forced through the wire-gauze, that would irritate the lungs, on passing through a large volume of flame: its external surface is convex. When flame is not in a rapid state of currency, this part of the apparatus is not necessary. By occupying the right hand, it has been found cumbersome, particularly in a narrow passage. Aldini, speaking of this shield, says, "It is of the greatest possible use." In all the experiments made in London, under the direction of Aldini, the firemen declared that they found it of no use, but, on the contrary, an incumbrance. It is, perhaps, only useful in passing through an avenue or room filled with flame, or through which flame* is passing with great force.

From the description given of these protecting dresses, a person, who has not seen them, would conclude that much time must be lost in putting them on, and that they are so cumbersome, as to prevent the active employment

of oxygen, or from humidity, there is always a considerable quantity of smoke, which, passing through the gauze, occasions troublesome cough, and a sense of suffocation; in which case, the person should not advance farther than he will be able to return in the course of a minute. In case the sense of suffocation should increase, a person that ventures into flame with the dresses, should, under every circumstance, not take in a deep breath, but breathe slowly; and now and then avoid exercising the respiratory muscles, so as to leave the lungs to that insensible respiration, which Dr. Carson of Liverpool has noticed, as being performed by a power of the lungs, which he denominates the "resilient action," by which life has been kept up for many hours.

* Flame is inflammable matter in a gaseous state in the act of combustion. When properly supplied with oxygen the flame is perfect. When combustion is imperfect, a quantity of inflammable matter passes off in what is termed smoke, forming soot.

of the lower and upper extremities, which is so often necessary in cases of fire. They are so constructed that, with the assistance of one person, they may be put on in about eight minutes, and, without any extra exertion he is able to run with moderate speed, to bend his body and joints, and to rise again, without being sensible of any incumbrance. In the numerous trials to which they have been subjected in London, the firemen have executed the requisite movements with perfect satisfaction to themselves. The dresses are both pliable and light, and the gauze-wire dress, when properly jointed, will not prevent the free motion of the limbs.*

Fig. 3.—A basket of wire-gauze, for conveying a child through flames. The communication with flame being completely cut off by the wire-gauze, a flannel dress will be sufficient to protect the body from the action of the heated air; but if a covering of woollen cloth, prepared as directed, (p.326,) be at hand, the preference should be given to it. By means of a wire-gauze basket, a child aged eight years, wrapt up in thick flannel, was repeatedly carried through a blazing fire (of chips and straw,) and although at one time it was enveloped in flame eight minutes, it did not sustain the slightest injury, or apparent inconvenience.

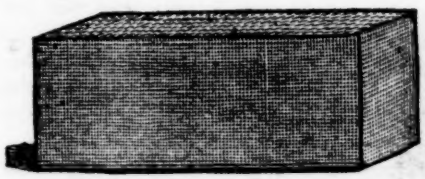


Fig. 4.—A case, made of thick asbestos cloth, for conveying very combustible articles through the flame. For articles not very combustible, the wire-gauze basket will answer as well as this case.

These means of rescuing lives and property from destruction, in cases of fire, are not recommended by Aldini on hypothesis or mere theory. They are founded on sound scientific principles, and have frequently been put to the test of experience on a large scale. After having made several experiments in Bologna, Geneva, and other places, the results of which were perfectly satisfactory to the numerous scientific characters who witnessed them, Aldini performed the same experiments on a larger scale, at the barracks in Paris, in the presence of the Prefect of Police, and of a commission from the Royal Academy of Sciences, and other philosophical societies. The celebrated philosopher, Guy-Lussac, after having witnessed these experiments, by particular appointment of the ministers, made the following report:—

"Two parallel hedges, about three feet distant from each other, were formed of straw and brushwood, supported by iron wires. When these combustible materials were set on fire, it was necessary to stand at a distance of eight or ten paces to avoid the heat. The mingled flames from both the hedges rose to the height of at least nine feet, and seemed to fill up the whole space between them. At this moment six firemen, protected by Professor Aldini's apparatus, and following each other at a slow pace, repeatedly passed through the whole space, between the two flaming hedges, which were kept constantly fed with additional combustibles. One of these persons carried a child in a wicker basket, covered by metallic gauze. The child had no other protection, than a mask of incombustible material. This experiment, which those who performed it made not without a feeling of dismay, was attended with the most satisfactory result."

* The wire-gauze dress is made in London, by Mr. Toplis, of Frederic Cottage, Goswell-road.

On this occasion, several firemen, protected by a glove of asbestos, covered by another metallic glove, and even with a double glove of asbestos alone, carried large bars of red-hot iron, whilst others exposed their heads, armed with an asbestos mask and metallic cap, in the midst of a large brasier, filled with flaming hay and wood; thus resisting the action of the flame sometimes as much as five or six minutes.

On another occasion, a fireman showed peculiar address in repeating this experiment, and resisted the action of the flames for about ten minutes.

When at Geneva, Aldini instructed the firemen in the defensive power of these dresses, before he made the public experiments. He showed them that a finger, enveloped first in asbestos, and then in a double case of wire-gauze, might be held in the flame of a spirit-lamp or candle for ten minutes, before inconvenient heat was felt; and then clothing them, gradually accustomed them to the fiercest flames.

The following are some of the public trials that have been made under his superintendence. A fireman having his hand enclosed in a double asbestos glove, and guarded in the palm by a piece of asbestos cloth, laid hold of a large piece of red-hot iron, carried it slowly to the distance of 150 feet, then set straw on fire by it, and immediately brought it back to the furnace. The hand was not at all injured in the experiment.

The second experiment related to the defence of the head, the eyes, and the lungs. The fireman put on only the asbestos and wire-gauze cap, and the cuirass, and held the shield before his breast. A fire of shavings was then lighted, and sustained in a very large raised chafing dish, and the fireman approaching it, plunged his head into the middle of the flames, with his face towards the fuel, and in that way went several times round the chafing dish, and for a period of above a minute in duration. The experiment was made several times, and those who made it, said they suffered no oppression or inconvenience in the act of respiration.

The third experiment was with the complete apparatus. Two rows of fagots, mingled with straw, were arranged vertically against bars of iron, so as to form a passage between, thirty feet long, and six feet wide. Four such arrangements were made, differing in the proportion of wood and straw, and one was with straw alone. Fire was then applied to one of these double piles; and a fireman, invested in the defensive clothing, and guarded by the shield, entered between the double hedge of flames, and traversed the alley several times. The flames rose ten feet in height, and joined over his head. Each passage was made slowly, and occupied from twelve to fifteen seconds; they were repeated six or eight times, and even oftener, in succession, and the firemen were exposed to the almost constant action of the flames for the period of a minute and a half, or two minutes, and even more.

When the course was made between the double range of fagots without straw, the fireman carried a kind of pannier on his back, prepared in such a way as to be fire-proof, in which was placed a child, with its head covered by an asbestos bonnet, and additionally protected by a wire-gauze shield.

Four firemen made these experiments, and they agreed in saying, that they felt no difficulty in respiring. A very abundant perspiration came on in consequence of the high temperature to which they had been exposed, but no lesion of the skin took place, except in one instance, where the man had neglected to secure his neck, by fastening the asbestos mask to the body-dress.

No one present could resist the striking evidence of defence afforded, when they saw the armed man traversing the undulating flames, frequently hidden altogether from view by them as they gathered around him.

All these experiments have since been repeated six or seven times in London; viz. at the Royal Institution, at the London Institution, at the establishment of the Humane Society, and three or four times in the presence of several directors of fire-insurance companies, and by direction of Mr. Peel,

in the presence of the heads of the London police, with the most satisfactory results.

In cases of fire, the attention of the fire insurance companies appears to be confined to the preservation of the building and furniture, in which they are alone, or rather pecuniarily interested. If a ladder, made so as to be capable of being elongated to reach a window of the uppermost story, were appended to every engine, which might be easily done, without rendering it cumbersome, or scarcely adding to its bulk, many lives might be rescued from one of the most painful deaths to which a person can be subjected.

We would recommend the important matters in the preceding article, to the attention of the *councils* in all the great cities and towns of the United States. In Philadelphia, owing to the facility with which an abundant supply of asbestos can be obtained from an adjoining county, (Delaware,) dresses and apparatus, similar to those above described, might be made under the direction, and at the expence of our city councils. The members of these boards will not turn away from any experimental inquiries, which have for their object the preservation both of life and property.

THE INVALID'S ORACLE.*

THIS oracle for invalids, by Dr. Kitchiner, is like that at Delphi of old, in regard to the contradictory inferences which may be drawn by those who consult it. The principles of hygiene inculcated by Dr. K., are, in the main, correct; but the practices by which he proposes they shall be carried into effect, are, at times, in flagrant contradiction with each other. Thus, in speaking of drink, and particularly of beer, he says, "While we praise the powers of *pure good beer*, we must also enter our protest against the horrid compounds commonly sold, as the worst material a man can drink—and the difficulty of obtaining good beer, ready brewed, and the trouble of brewing is so great, that *happy they who are contented with good toast and water*, as a diluent to *solid food*, and a few glasses of wine, as a finishing *bonne bouche*." This language of the Doctor means, that for health, and the necessary purposes of drink, good toast and water is sufficient; but that to tickle the palate, and as a kind of relish, we may take a few glasses of wine—the which advice we conceive to be not very clear, or precise, for the guidance of an invalid. Elsewhere, he says, that "no man should habitually take wine as [with ?] food, till he is past 30 years of age at least." Now, if a man have dispensed with wine until this time, he will certainly not find his health or morals improved by habitually using it afterwards. Dr. K. does not tell us this, although he eulogises the practice of water drinking in these words:

"Among other innumerable advantages which the water drinker enjoys, remember he saves a considerable sum of money per annum, which the beer

* "Directions for Invigorating and Prolonging Life; or, the Invalid's Oracle—by Wm. Kitchiner, M. D. Revised and Improved by T. S. Barrett, Licentiate in Medicine and Surgery. J. & J. Harper, New York."

and wine drinker wastes, as much to the detriment of his health, as the diminution of his finances; moreover, nothing deteriorates the sense of taste so much as strong liquors; the water drinker enjoys an exquisite sensibility of palate, and relish for plain food, that a wine drinker has no idea of." Again we are told—"Happy are the young and healthy, who are wise enough to be convinced that water is the best drink, and salt the best sauce."

The author was not one of those happy mortals—and in the very next sentence to the above, he proceeds to tell us of his own practice, respecting the quantity and quality of the wines he drank, and of the temperature of toast and water with which he mixed either his wine, or sometimes his whiskey. It is thus that his book is made up—a jumble of exhortations to temperance, and genteel and agreeable methods of becoming intemperate. In one page, he tells us that plain gruel is one of the best breakfasts and suppers that we can recommend to the rational epicure,—is the most comforting soother of an irritable stomach, and particularly acceptable to it, after a hard day's work of intemperate feasting. Just before this, he gives us a recipe for essence of ginger, alias a brandied tincture of ginger; directions for making soda water follow recipes for stomachic tinctures, and tinctures of cinnamon, which are all of them brandy, flavoured with some bitter or spice; and all specially objectionable. Hot water will advantageously, to our certain knowledge, supply their place. Such recipes ought not to appear in a book on the means of preserving health, written by a professional man. But Dr. Kitchiner cared little for consistency, in his desire to make up an amusing melange—a medley of all dietetic practices.

The duration of his own life (48 years) was not a very flattering commentary on the success of his maxims of regimen.

Some additions have been made to the American edition of this work, by T. S. Barrett, Licentiate in Medicine and Surgery. They are, for the most part, correct. We might take exceptions to some passages in the chapter on Bathing—as where the editor speaks of the tonic effect of the cold bath, and of its being "of the greatest service in all disorders originating in, or connected with, simple weakness and relaxation; that is, in debility unaccompanied with any disease of structure, or positive injury to an important organ." Do not we often hear of persons being too weak to bear the cold bath? Now we never allege that a person is too weak to bear a tonic. The cold bath is in fact a direct sedative, reducing morbid excitement. Hence its use in the hot stage of intermittents—in the burning skin and delirium of typhus—in scarlet fever—in hemorrhages, &c. On the same principle it agrees best with the sanguine and robust—those in whom there is a superfluity of animal heat.

SUDDEN DEATH FROM COLD WATER.

While seldom a summer passes without the occurrence of a number of sudden deaths, in our principal cities, from drinking cold water, it is a remarkable fact, that the lives of very few of our sober and industrious

farmers, in the interior of the country, are destroyed from the same cause; though it is well known that they partake freely of cold well, or spring water; and that too, when, during harvest, their bodies are greatly heated by exercise and exposure to the sun. The reason why they feel so little inconvenience from a practice, which, if followed by the generality of labourers in the city, would be promptly fatal, is readily explained, by the greater amount of health and vigour they possess, in consequence of their temperate and regular lives, their habits of active exercise, and constant exposure to a free and wholesome atmosphere. The cases of sudden death from the use of cold water, which occur during summer, in our cities, will be found almost exclusively confined to those labourers whose habits are decidedly intemperate, or who make use, at least, of a considerable amount daily, of ardent spirits; and who, at the time the water is drunk, are exhausted by fatigue, and the heat of the weather. The injurious effects arising from the use of cold fluids, in such habits, under similar circumstances, are not, however, met with only in the city—the farmer or labourer in the country, the energies of whose constitution have been depressed by the pernicious practice of dram drinking, will equally fall a victim, if, when fatigued by labour, or exhausted by profuse perspiration, he attempt to allay his thirst from the cold spring. The system of the drunkard has not the power of resisting the influence of either heat or cold—hence, in hot weather, it is readily exhausted even by moderate exertion; while it sinks rapidly under the depressing effects of cold, whether acting on the stomach, the great centre of vitality, or upon the exterior surface of the body. It is not to be wondered at, therefore, that when such a person is exposed, at the same time, to the influence of intense heat, during mid-summer, and to the sudden impression of the cold water taken into the stomach, that an immediate cessation of life should be the result.

The use of water of a very low temperature, as that of deep wells, or which has been rendered cold by the application of ice, is by no means to be recommended, even to the perfectly temperate. Its introduction into the stomach of any one is attended with danger, but especially after exposure to heat, or when the body is labouring, for the time, under a degree of exhaustion, by whatever cause produced. Though it will seldom kill, immediately, those in perfect health, yet it is liable to produce violent cramp, or even inflammation of the stomach. But in avoiding the imprudent use of cold water, there is not the least necessity for giving up entirely nature's beverage, nor of resorting, under any circumstances, for a drink, to distilled or fermented liquors. Water of the temperature of that afforded by our hydrants in the city; or in the country—water, which, after being drawn, is, for a short time, exposed to the air, may be fearlessly drunk, at all times, by a person in ordinary health. When injury to such does occur from the use of water, it is referrible, in most cases, less to its coldness, than to the eagerness and rapidity with which it is swallowed, and the excessive quantity drank at one time. It is well known to every one, who has tried the experiment, that thirst is most readily and effectually quenched, by the frequent use of very moderate quantities of fluid, slowly swallowed. The habit of suddenly introducing into the stomach a large amount of water, no matter what the temperature may be, is, of itself,

liable to produce, not only uneasy sensations to the individual, but permanent injury to the stomach. The inordinate and uncontrolable thirst, which induces a person to drink immoderately of water, is much less liable, however, to be experienced, during summer, by the habitually temperate, than by the drunkard, or, indeed, by those who make use of intoxicating drinks in any quantity. The sense of thirst may, also, be greatly moderated, first, by the use of succulent fruits, which would appear to be furnished by nature so abundantly in warm climates, for this very purpose. Secondly, by a diet mainly vegetable; and thirdly, by the frequent use of the bath. But the chief means of avoiding injury, from the use of water as a drink, in seasons of intense heat, are, complete and habitual abstinence from intoxicating drinks, and the moderate use of water, the temperature of which is not too much reduced. Water, barely cool, slowly swallowed, will very effectually allay thirst, without producing any injurious consequences. Though, at first, it may be found insipid, or even disagreeable to the palate, a continuance in its use, will, as we know from experience, render it even more agreeable than water of a lower temperature.

THE AMERICAN AQUATIC.

We beg leave, before explaining the origin of the title, and to whom it was applied, to repeat one of the "Hints to Mechanics and Workmen," which we gave in our first volume, p. 351. "Abstain from ardent spirit, cordials, and malt liquors—Let your drink be like that of Franklin, when he was a printer—pure water." This advice of ours, given with a sincere desire to benefit those to whom it was addressed, and with a full knowledge that its adoption would be productive of practically beneficial effects, was carped at by some who could not separate truth from error, nor pernicious from salutary habits. Excusable by their ignorance, we mean not now to censure them; but shall proceed to show on what foundation, and with what propriety, we appealed to the example of the illustrious Franklin.

In the sketch of his life, written by himself, this great man relates, among other matters, respecting his residence in London, at the time in which he was a journeyman printer, the following dietetic particulars:—

"On my entrance I worked at first as a pressman, conceiving that I had need of bodily exercise, to which I had been accustomed in America, where the printers work alternately as compositors and at the press. I drank nothing but water. The other workmen, to the number of about fifty, were great drinkers of beer. I carried occasionally a large form of letters in each hand, up and down stairs, while the rest employed both hands to carry one. They were surprised to see, by this and many other examples, that the *American Aquatic*, as they used to call me, was stronger than those who drank porter. The beer-boy had sufficient employment during the whole day in serving that house alone. My fellow pressman drank every day a pint of beer before breakfast, a pint, with bread and cheese for breakfast, one between breakfast and dinner, one at dinner, one again about six o'clock in the afternoon, and another after he had finished

his day's work. This custom appeared to me abominable; but he had need, he said, of all this beer, in order to acquire strength to work.

"I endeavoured to convince him that the bodily strength furnished by the beer, could only be in proportion to the solid part of the barley dissolved in the water of which the beer was composed; that there was a larger portion of flour in a penny loaf, and that consequently if he ate this loaf, and drank a pint of water with it, he would derive more strength from it than from a pint of beer. This reasoning, however, did not prevent him from drinking his accustomed quantity of beer, and paying every Saturday night a score of four or five shillings a week for this cursed beverage; an expense from which I was wholly exempt. Thus do these poor devils continue all their lives in a state of voluntary wretchedness and poverty."

"My example prevailed with several of them to renounce their abominable practice of bread and cheese with beer; and they procured, like me, from a neighbouring house, a good basin of warm gruel, in which was a small slice of butter, with toasted bread and nutmeg. This was a much better breakfast, which did not cost more than a pint of beer, namely, three halfpence, and at the same time preserved the head clearer. Those who continued to gorge themselves with beer, often lost their credit with the publican, from neglecting to pay their score. They had then recourse to me, to become security for them; *their light*, as they used to call it, *being out*. I attended at the pay-table every Saturday evening, to take up the little sum which I had made myself answerable for; and which sometimes amounted to nearly thirty shillings a week."

Franklin always had a cool head—he was ready for every emergency; he acquired a reputation, as philosopher and statesman, which has given his name currency over the whole civilized world. Surely the example of such a man is more worthy of imitation, than that of the various classes of boozy songsters—convivial jokers—pretenders to social enjoyment at the expense of head and heart—canters of liberality—servile imitators of the vices of genius, and admirers of the degradation of their species, which they qualify with the specious epithets of civilization, refinement, taste and the like.

SOAP.

It is a very common opinion that soap injures the skin, and we accordingly find that they who are the most interested in the preservation of personal beauty, reject the use of it entirely in bathing and washing. While we do not believe that it can with propriety be dispensed with, yet we are well aware that, in the economy of a fine complexion and delicate skin, much depends upon the quality of the soap which is made use of. The ordinary brown and yellow kinds are altogether unfitted for cleansing the skin, as they invariably irritate it, and when frequently used, most generally cause it to become rough, chapped, or covered with painful and unsightly pimples. These effects arise as well from the strength of these soaps as from the yellow resin which enters so largely into their composition. Most, if not all, of the coloured and variegated soaps, prepared expressly for the toilet, are equally objectionable, in consequence of the action on the skin of the colouring matter, which is most commonly some metallic salt. From the occasional use, however, of pure white soap, particularly that manufactured solely

from soda and olive oil, which is entirely without smell, hard and brittle, the fracture presenting a pearly and granulated or crystalline appearance, not the least injury to the skin need be apprehended; while it will be found to cleanse it more effectually from all impurities than any of the substitutes for soap which females, in particular, are too much in the habit of resorting to; many of which have a decidely prejudicial effect. Pure white soap ought, therefore, to be invariably used in ablutions of the face and hands, or of the surface generally. But it may be asked, What necessity is there for the use of any kind of soap in washing? We reply, that personal cleanliness cannot be effectually secured without it. A few remarks will render this evident to every one. In addition to the perspiration which is thrown out by the skin, a portion of which always remains upon this surface, it is constantly lubricated by an oily fluid. It is this that occasions, after bathing, the water, with which it does not unite, to collect in minute drops upon the body, and which gives to the skin of those in whom it is furnished in large quantities, an habitual greasy and dirty appearance; while of those in whom it is deficient, the skin has a harsh, dry, and scaly aspect. This oily exudation greases the linen when it is worn for too long a time—catches the dust floating in the air, and causes it to adhere to the skin, and likewise retains in contact with our bodies, a portion of the excrementitious matter, which it is the office of the skin to discharge from the system. The removal of this deposit, which is constantly accumulating, is absolutely necessary, as well for personal comfort as for the preservation of health. Now the oily matter referred to, with the foreign substances accidentally combined with it, is not readily or completely soluble in simple water; it cannot, therefore, be effectually removed without the occasional use of soap, with which it combines without difficulty.

The frequency with which it is necessary to wash with soap will depend, in a great measure, upon the occupation and exposure of individuals. If these be such as do not subject them to an atmosphere loaded with dust, or to the frequent contact of such substances as have a tendency to soil the skin, washing the face, hands, and arms, once a day, with soap and water, will be sufficient, particularly if the water be warm or tepid, and its application be followed by brisk friction with a somewhat coarse towel. But mechanics, and they who, from any cause, are peculiarly liable to have deposited upon their skin, dust, dirt, or any foreign matters, will find that washing several times a day, especially before each meal, and previously to retiring to bed, in addition to a frequent use of the bath, will be demanded, as well for the preservation of the skin as of their health generally. Upon the labouring classes the importance of frequent ablutions cannot be too strongly urged—cleanliness of the person in its strictest sense is too often practised by them in a very imperfect manner. Repeated washing of the face, hands, arms and feet, though all important, is not sufficient. The entire surface of the body requires equal attention; and it would be well if measures were adopted to afford to every labourer and mechanic the time and means for the daily use of the bath in summer, and its not unfrequent use in winter.

HUMBUG.

THIS is a plain, and not very elegant term, but it is an expressive one; and, at any rate, it is suited to the class of persons on whose tricks and impositions we propose offering a few brief comments. The reader will readily anticipate us, when we say, that we have to deal on the occasion with quacks and quackeries.

First of the humbugs, on a large scale, is "Swaim's Panacea," both as respects its origin, and the kind of evidence adduced in support of its reputed virtues.

The medicine known under this title, is claimed to be the invention of Mr. Swaim, with just as much truth as if he were said to have invented the steam engine, or Godfrey's quadrant. If he invented it, or made up, at his own unaided suggestions, this compound ycleped panacea, we may as well give him credit for having invented the sarsaparilla, and the sugar, and the other articles used to form it: that is, the compound syrup of sarsaparilla. Some allege that his syrup, supposing it free from mercurial poisons, must be better than that made by apothecaries—but why, we are at a loss to conceive, unless we admit, that men educated and trained up, as apothecaries generally are, to mix and compound medicines, after known and approved prescriptions, should be less competent to the discharge of their duty than a person who takes it up at random, in ignorance, and as a matter of speculation.

Again, Swaim's panacea is alleged by himself and his agents, to be so safe and mild a medicine that it may be taken with impunity by an infant at the breast. But we have well attested cases, in no small number, of its salivating violently. Dr. Gibson, of the University of Pennsylvania, among others, positively affirms this fact. Professor Hare, also of the University, has detected mercury in the panacea; so have several other chemists in New York and elsewhere. Professor Hare, so celebrated for his skill in analysis, has also lately detected arsenic in a bottle of the panacea. And this is the harmless medicine! This is what even infants may take with impunity! Now the public is still to consent to be humbugged, and to believe that all this evidence, from so many different quarters, is to go for nothing—and why? Just because those interested in keeping up the imposition, say, we must agree to be imposed upon.

But "all the panacea made does not contain metallic or poisonous ingredients!" Certainly it does not. We may even suppose that it is, for the most part, the sarsaparilla syrup. Here again is another beautiful sample of humbug. A man, ignorant of chemistry, of the functions of the body in health, and of their changes in disease, would persuade us that the chance allotment to purchasers, of those bottles of his panacea which contain mercury, &c., is better for the public, than that a physician should add to the syrup, prepared under his own inspection, a mercurial salt, with a view to its operation on the particular case and stage of disease, which he has under treatment at the time.

The system of certificates in favour of the panacea, is another choice speci-

men of humbug. The evidence which met the eyes of some of the Professors who certified in its favour, was about as strong and conclusive as that which should be alleged in favour of buttermilk curing the gout, or a red ribband round the neck curing the falling sickness. But their good nature prevailed over the clearest principles of logic, ethics, and medicine. They repented, after a time, of their precipitancy, and gave in to the Medical Society, counter statements, which we published in the first volume of this journal. Their first certificates are, however, still set forth, in bold relief, by Mr. Swaim, with the effect of keeping up the system of humbug, and showing them off in any thing but an enviable point of view.

We need not be surprised, if the successful operation of this system by one individual, should encourage others to imitate him. Among the more recent humbugs of the class now under consideration, are the pretensions set forth in favour of a mixture called "Patronus Magnus." It is said to be a sovereign cure for colic, rheumatism, and pleurisy, &c. &c.—A composition consisting, among other things, of camphor and red pepper, to cure pleurisy! Do these advertising worthies know that colic itself exhibits great varieties in its intensity and cause, and demands a correspondingly diversified treatment? Mere flatulent colic may be relieved often by any warm drink or condiment; but bilious and inflammatory colic would be as certainly aggravated by heating remedies, including this same pepper—a single dose of which would, in cases, jeopardise the life of the patient. And then to give such a thing to cure pleurisy! A physician who should give a strong infusion of cayenne pepper to cure the pain of pleurisy, would be liable to an action for damages against him by the surviving friends of his patient. But we presume there is a broad conventional patent, alias humbug, by which the monstrous absurdities of medical volunteers and Cossacks are to be screened from public scrutiny and censure. It may, however, be very naturally doubted whether this privilege should extend to apothecaries, who know the composite and general effects of these vile nostrums. We pray them to reflect a little on this matter. They must not expect that physicians shall tolerate their connivancy with quackery.

Next, on the list of humbugs, may be mentioned, *Certain Cures* for the summer complaints of children—as if any one medicine, or combination of medicine, should cure a disease, for the removal of which the nicest attention is required to be paid to the quality and quantity of the food of the little sufferer, the temperature and purity of the air which it ought to breathe, the amount and texture of its clothing, regularity and suitable temperature of baths, &c. These, and sundry other modifying circumstances, such as teething, and weaning, are all to be disregarded—all these are matters of no moment, if the child takes a bottle or two of the certain cure! Would it not answer the purposes of these benevolent advertising quacks, if the parent of the child were to buy their medicine, and then—throw it away? This would certainly be a safer course for the little patient.

The first number of the "Monthly American Journal of Geology and Natural Sciences," conducted by G. W. Featherstonhaugh, Esq., containing 50 pages, with two lithographic prints, was issued on the first of the present month. Terms, $3 50 per annum.